



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: <b>PCT/CA99/00237</b> (22) International Filing Date: <b>19 March 1999 (19.03.99)</b> (30) Priority Data: <b>60/078,728 20 March 1998 (20.03.98) US</b> (71) Applicant: <b>HER MAJESTY IN RIGHT OF CANADA</b> as represented by <b>THE MINISTER OF AGRICULTURE AND AGRI-FOOD CANADA [CA/CA]</b>; Eastern Cereal &amp; Oilseed Research Centre, K.W. Neatby Building, Ottawa, Ontario K1A 0C6 (CA). (72) Inventors: <b>ROBERT, Laurian, S.; 12 De Maison, Gatineau, Quebec J8V 1Y4 (CA). GLEDDIE, Stephen; 33 Leonard Avenue, Ottawa, Ontario K1S 4T8 (CA).</b> (74) Agents: <b>SECHLEY, Konrad, A. et al.; Gowling, Strathy &amp; Henderson, Suite 2600, 160 Elgin Street, Ottawa, Ontario K1P 1C3 (CA).</b></p>		<p>(81) Designated States: <b>AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO</b> patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>
<p>(54) Title: <b>PROTEIN EXPRESSION IN FLORAL CELLS</b> (57) Abstract</p> <p>This invention is directed to a method for the expression of a gene of interest, or a chimeric or modified gene allowing the localization of a protein, protein fusion, peptide or fragment of interest within the extracellular domain of a floral cell. This method comprises preparing a construct comprising a promoter sequence capable of expressing a gene encoding the protein, protein fusion, peptide, or fragment of interest, within the floral cell; a translated sequence of the protein, protein fusion, peptide, or fragment of interest, which is localized within the extracellular domain of a floral cell; a gene that encodes the protein, protein fusion, peptide, or fragment of interest; and a terminator sequence, and transforming a plant. Plants transformed with such a construct are characterized as having a protein, fragment thereof, or peptide of interest on the surface of a floral cell. Such localized proteins or peptides may be used for the purposes of peptide display, mediating plant sterility, modifying pollen-pistil interactions, altering pollen for insect consumption etc.</p> <div data-bbox="581 1134 1380 1816"> <p style="text-align: center;"><u><b>ANTHER</b></u></p> <p>The diagram illustrates the structure of an anther. Part A shows a cross-section of the anther with labels for the <b>TAPETUM</b> (the innermost layer of cells) and <b>TETRADS</b> (groups of four cells). Part B shows a longitudinal section of the anther, with a detailed inset showing a single tetrad. The inset is labeled with numbers: 40 points to the outer wall, 10 points to the inner wall, 20 points to the middle layer, and 30 points to the end wall. A small number 5 is also visible near the top of the longitudinal section.</p> </div>		